

AMENDMENTS TO THE CLAIMS

1-97. (Cancelled)

98. (Currently Amended) A control system for use in connection with a radiation delivery system having a radiation source that produces a radiation beam, a patient support, and a drive system that moves the patient support, the control system comprising:

a wireless marker configured to be implanted in the patient at a site relative to a treatment target;

a plurality of sensors in a fixed and known geometry relative to each other that obtains position information about the location and/or orientation of the marker; and

a computer operatively coupled to the sensor, the computer having a computer operable medium containing instructions that cause the computer to (a) receive the position information from the sensor, (b) determine an actual location of the treatment target, (c) compute a displacement between the treatment target and a beam isocenter of the radiation beam, and (d) automatically control the radiation beam and/or move the patient support based on the computed displacement between the treatment target and the beam isocenter.

99. (Previously Presented) The control system of claim 98 wherein the instructions contained by the computer operable medium further cause the computer to compute the displacement between the treatment target and the beam isocenter in three dimensions based on the actual location of the treatment target at least every at least twelve times per minute while the sensor obtains the position information.

100. (Previously Presented) The control system of claim 98 wherein the instructions contained by the computer operable medium further cause the computer to operate the drive system to move the table so that the treatment target remains in an acceptable range of the beam isocenter.

101. (Previously Presented) The system of claim 98 wherein the instructions contained by the computer operable medium further cause the computer to operate the radiation source to interrupt the radiation beam when the computed displacement is not within an acceptable range.

102. (Currently Amended) A control system for use in connection with a radiation delivery system having a radiation source that produces a radiation beam, a patient support, and a drive system that moves the patient support, the control system comprising:

a wireless marker configured to be implanted in the patient at a site relative to a treatment target;

a plurality of sensors in a fixed and known geometry relative to each other that obtains position information about the location and/or orientation of the marker; and

a computer operatively coupled to the sensor, the computer having a computer operable medium containing instructions that cause the computer to perform the method of (a) sensing the marker to obtain position information related to an actual position of the marker, (b) determining an actual location of the treatment target based on the sensed position information of the marker, and (c) controlling the radiation beam and/or movement of the patient automatically via a computer based on the actual position of the treatment target while sensing the marker.

103. (Currently Amended) A control system for use in connection with a radiation delivery system having a radiation source that produces a radiation beam, a patient support, and a drive system that moves the patient support, the control system comprising:

a wireless marker configured to be implanted in the patient at a site relative to a treatment target;

a plurality of sensors in a fixed and known geometry relative to each other that obtains position information about the location and/or orientation of the marker; and

a computer operatively coupled to the sensor, the computer having a computer operable medium containing instructions that cause the computer to perform the method of (a) sensing the marker to obtain position information related to an actual position of the marker, (b) determining an actual position of the treatment target based on the position information of the marker, (c) computing a displacement between the treatment target and a beam isocenter of the radiation beam in three dimensions based on the actual position of the treatment target, and (d) moving a patient support platform by automatic control when the displacement between the treatment target and the beam isocenter is beyond an acceptable range.

104. (Currently Amended) A control system for use in connection with a radiation delivery system having a radiation source that produces a radiation beam, a patient support, and a drive system that moves the patient support, the control system comprising:

a wireless marker configured to be implanted in the patient at a site relative to a treatment target;

a a plurality of sensors in a fixed and known geometry relative to each other that
obtains position information about the location and/or orientation of the
marker; and
a computer operatively coupled to the sensor, the computer having a computer
operable medium containing instructions that cause the computer to
perform a method while the patient is placed on the patient support such
that the wireless marker can be sensed by the sensor, the method
comprising (a) obtaining position information about the position and/or
orientation of the wireless marker from the sensor, (b) determining an
actual location of the treatment target based on the position information
obtained from the sensor, (c) computing a displacement between the
treatment target and a beam isocenter of the radiation beam, and (d)
automatically moving the patient support and/or controlling the radiation
beam via a computer based on the computed displacement between the
treatment target and the beam isocenter.

105. (Currently Amended) A control system for use in connection with a
radiation delivery system having a radiation source that produces a radiation beam, a
patient support, and a drive system that moves the patient support, the control system
comprising:

a wireless marker configured to be implanted in the patient at a site relative to a
treatment target;
a plurality of sensors in a fixed and known geometry relative to each other that
obtains position information about the location and/or orientation of the
marker; and
a computer operatively coupled to the sensor, the computer having a computer
operable medium containing instructions that cause the computer to
perform a method while the patient is placed on the patient support such

that the wireless marker can be sensed by the sensor, the method comprising (a) obtaining position information about the position and/or orientation of the wireless marker from the sensor, (b) determining an actual location of the treatment target based on the position information obtained from the sensor, (c) computing a displacement between the treatment target and a beam isocenter of the radiation beam, and (d) automatically moving the patient support and/or controlling the radiation beam via a computer based on the computed displacement between the treatment target and the beam isocenter.

106. (Currently Amended) A control system for use in connection with a radiation delivery system having a radiation source that produces a radiation beam, a patient support, and a drive system that moves the patient support, the control system comprising:

a wireless marker configured to be implanted in the patient at a site relative to a target in the patient;

a plurality of sensors in a fixed and known geometry relative to each other that obtains position information about the location and/or orientation of the marker; and

a computer operatively coupled to the sensor, the computer having a computer operable medium containing instructions that cause the computer to perform the method of (a) sensing the marker to obtain position information related to an actual position of the marker, (b) determining an actual location of the target based on the sensed position information of the marker, and (c) controlling a radiation beam for treating the patient and/or movement of the patient automatically via a computer based on the actual position of the target while sensing the marker.

107. (Currently Amended) A control system for use in connection with a radiation delivery system having a radiation source that produces a radiation beam, a patient support, and a drive system that moves the patient support, the control system comprising:

a wireless marker configured to be implanted in the patient at a site relative to a target;

a plurality of sensors in a fixed and known geometry relative to each other that obtains position information about the location and/or orientation of the marker; and

a computer operatively coupled to the sensor, the computer having a computer operable medium containing instructions that cause the computer to perform the method of (a) sensing the marker to obtain position information related to an actual position of the marker, (b) determining an actual location of the marker based on the sensed position information of the marker, and (c) controlling a radiation beam for treating the patient and/or movement of the patient automatically via a computer based on the actual position of the marker while sensing the marker.